

First record of the genus *Ferrissia* Walker, 1903 (Gastropoda: Planorbidae) from the Papuan region

KRISTINE GREKE

Stopiņu novads, Dārza iela 10, LV-2130, Dzidriņas, Latvia; k.greke@gmail.com

Abstract: The freshwater limpet genus *Ferrissia* Walker, 1903 is widely distributed over the globe with one species, *F. fragilis* (Tryon, 1863), being near-cosmopolitan. Species of this genus are known both from temperate and tropical latitudes. Not a single record of *Ferrissia* has been previously known from the Papuan region and New Guinea despite several species of this genus known from surrounding areas. The first known record of *Ferrissia* from southern Bird's Neck of New Guinea incorporates the World's second largest island into the distribution range of the genus.

Key words: Mollusca, Gastropoda, Planorbidae, *Ferrissia*, New Guinea, Papuan region.

Introduction

Tiny freshwater limpets of the genus *Ferrissia* Walker, 1903 are among the well-known puzzles in recent biogeography and systematics of molluscs, because of the rapid cryptic invasion of North American species *F. fragilis* (Tyron, 1863) and its species-complex to Eurasia. Only with the help of modern molecular phylogenetics it was possible to clarify the systematic position of numerous species, subspecies and lower rank taxa of *Ferrissia* described from around the World (Walther et al. 2006; 2010; Son 2007).

Instead of being a popular object of gene sequencing and, as result, sampled and studied intensively in Europe and the U.S.A., faunal records of *Ferrissia* from the Papuan biogeographical region (sensu lato) and New Guinea were absent. The discovery of a population of *Ferrissia* sp. in southern Bird's Neck of Indonesian Papua finally gives us possibilities to clarify the origin of Australian and Papuan freshwater limpet faunas and to reconstruct possible ways of *Ferrissia* diversification in this part of the globe.

Material and Methods

All specimens described below were collected by hand and are preserved in 70% ethanol. Specimens were studied using a Leica S6D stereomicroscope. Specimen photographs were taken using a Canon EOS 450D SLR camera attached to the mi-

croscope, and CombineZP software was used for image stacking. Mitochondrial DNA was used for preliminary genetic analysis.

New faunal information

Ferrissia sp.

Material: About 100 specimens (among them 10 specimens stored in Naturkundemuseum Erfurt, Germany): Indonesia E, West Papua, S Bird's Neck, Kaimana 35-40 km E, Triton Bay, River Lengguru valley upriver from Oray vill., 3°43'26"S, 134°06'06"E, 9-30 m, 13.IX.2010, pond in primeval lowland rainforest on limestone, leg. K.Greke.

Additional information to sampling locality: Specimens sat on surface of the large rotten leaves fallen into the water on depth 5-20 cm. Water temperature +26°C at the midday time.

Taxonomical and phylogenetic notes: Interestingly, it seems to be impossible to assign the New Guinean specimens to any of hitherto described species of *Ferrissia* Walker, 1903. A preliminary genetic analysis resulted in a sister relationship of the New Guinean specimens to a [also hitherto indet.] North Australian samples of *Ferrissia* sp. (subgenus *Pettancylus* Iredale, 1943) with a genetic distance of approximately 5% in the mitochondrial cytochrome c oxidase I gene fragment. In turn, the clade containing the New Guinean and Australian specimens shows a sister relationship to the species-complex of the near-cosmopolitan *Fer-*



rissia fragilis (Tryon, 1863).

I decide to hold the description of a new species until more complete phylogenetic studies will be done for the genus *Ferrissia*, which are now in progress (Albrecht, pers. comm.).

Distribution: Several species of *Ferrissia* are known from areas around New Guinea, like Sulawesi, the Philippines, Australia and Tasmania. This is the first record of the genus *Ferrissia* from the island of New Guinea and the Papuan biogeographical region sensu lato (including the Moluccan Archipelago, Raja Ampat Islands and Solomon Islands). It fills a large gap in distribution of this cosmopolitan genus and herewith opens a way of solving some questions in Wallacean biogeography.

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References

- Son M.O. 2007. North American freshwater limpet *Ferrissia fragilis* (Tryon, 1863) (Gastropoda: Planorbidae) – a cryptic invader in the Northern Black Sea Region. – *Aquatic Invasions* **2**, No. 1 : 55-58.
- Walther C.A., Lee T., Burch J.B., O’Foighil D. 2006. Confirmation that the North American ancyliid *Ferrissia fragilis* (Tryon, 1863) is a cryptic invader of European and East Asian freshwater ecosystems. – *Journal of Molluscan Studies* **72**, No. 3: 318-321.
- Walther A.C., Burch J.B., Ó Foighil D. 2010. Molecular phylogenetic revision of the freshwater limpet genus *Ferrissia* (Planorbidae: Ancylinae) in North America yields two species: *Ferrissia* (*Ferrissia*) *rivularis* and *Ferrissia* (*Kincaidilla*) *fragilis*. – *Malacologia* **53**, No. 1: 25-45.

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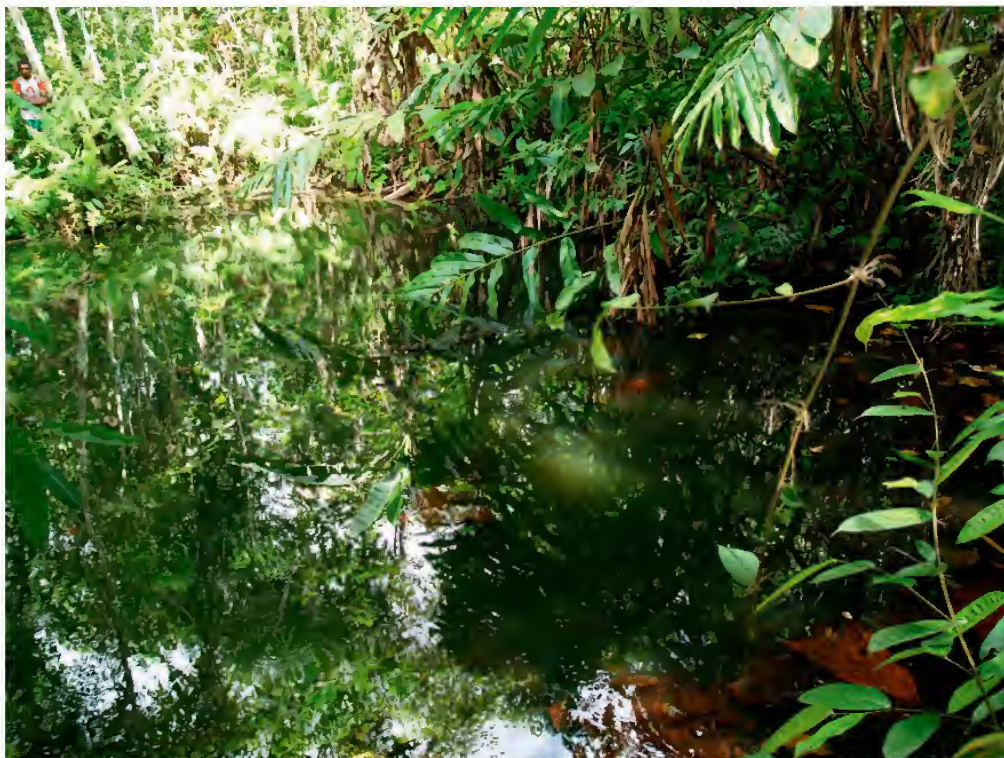
Figures 1-3. *Ferrissia* sp. specimens from southern Bird’s Neck, Indonesian New Guinea.

1: shell (dorsal view); 2: shell and soft body (ventral view); 3: shell (lateral view).

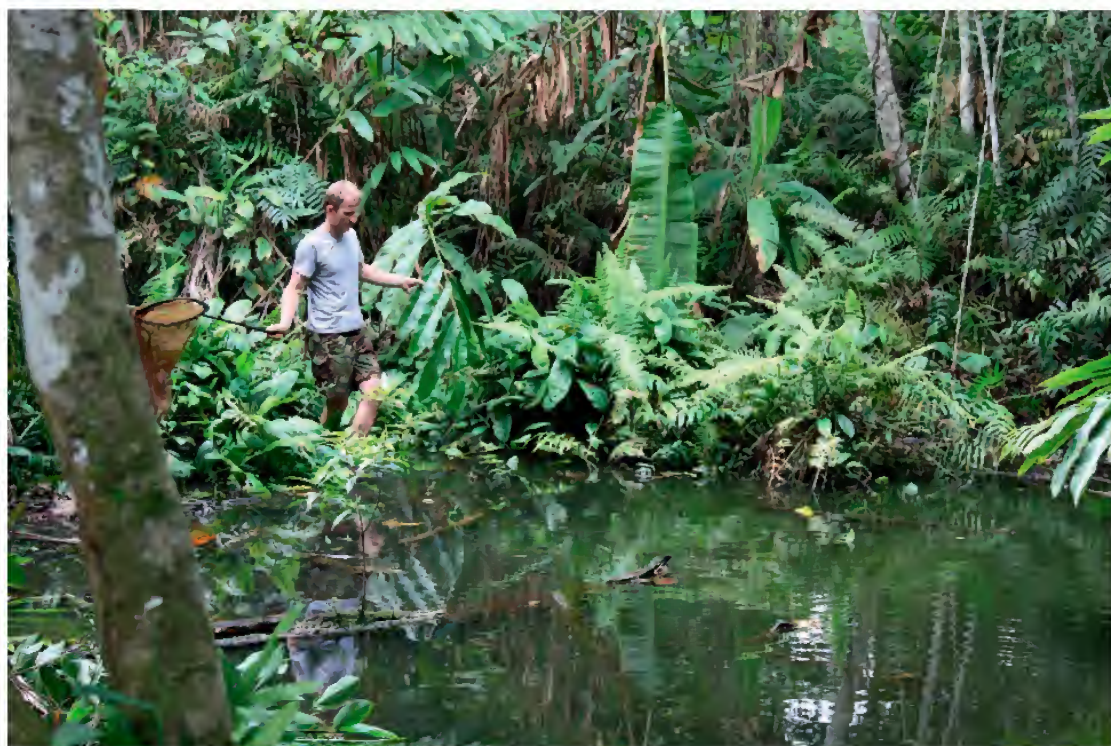


Plate 15

GREKE K.: First record of the genus *Ferrissia* Walker, 1903 (Gastropoda: Planorbidae) from the Papuan region



1



2

Figures 1-2. A pond in the middle of rainforest - a habitat of *Ferrissia* on New Guinea, River Lengguru valley, southern Bird's Neck, near Triton Bay (photo 1: M.Kalniņš, 2010, photo 2: K.Greke, 2010). Specimens were sat on large fallen leaves 2-10 cm deep in the water, as just visible on figure 1 in the left bottom corner.